AQUA MARINE™

Integrated Naval RESM, CESM, LWS & ECM Suite

Elbit Systems™
ISTAR & EW - Elisra

AQUA MARINE™

All Digital Naval RESM, CESM, LWS & ECM Suite for all Platform Sizes

Elbit Systems EW & SIGINT-Elisra's Aqua Marine™ is a digital, modular, and combat-proven family of advanced naval EW suites. These systems are based on Elisra's extensive field experience of over four decades of success with customers around the globe, and as the preferred and prime supplier to the Israeli Navy.

Fully integrable and interoperable, these 5th generation lightweight and small-footprint systems provide today's most critical capabilities - situation awareness, electronic attack, ship self-defense, and electronic intelligence. The Aqua Marine suite is designed to operate in littoral and blue waters environments, can handle very high pulse rates including POP (Pulse on Pulse), and is able to deal simultaneously with today's - and tomorrow's - most advanced threats. Exceptionally sensitive, maintaining a frequency wide open mode with fast reaction time and 100% POI (Probability Of Intercept), Aqua Marine detects radar threats in advance, including over-the-horizon threats. Sophisticated software analyzes threats based on statistical models and machine learning - thus ensuring recognition of both known and new threats.

Channelized and protected against harsh electromagnetic environments, Aqua Marine enables connectivity between platforms and allows multiple platforms to communicate with each other for mission coordination. Suitable for all types of surface vessels as well as submarines, the uniquely flexible and modular solution allows the individual design of end-to-end EW suites.

Main Features

- ESM or Integrated ESM/ECM suite
- Long range including over-the-horizon radar detection
- Instantaneous 360° coverage
- "Exotic" signal sorting
- Dense electromagnetic environment handling
- Fast threat warning
- Automatic emitter identification
- Identification Library generation and editing tool
- Simultaneous engagement of multiple threats
- Sophisticated power management and ECM techniques
- Technique generator tool
- Multi Beam Array Transmitter (MBAT or SSA)
- Integrable with on-board combat systems
- Extensive BIT and diagnostic capabilities
- Full compliance with MIL-E-16400, MIL-STD-2036
- ISO AS9100 certified Quality Assurance system

360° Instantaneous Direction Finding (DF)
• Compact Spiral Antenna Array for better than 5° RMS DF Accuracy
• Monopulse Multi Beam Amplitude Array for better than 2° RMS DF Accuracy
• Linear Interferometer for Enhanced DF Accuracy
• Radar ESM (RESM) Circular Interferometer & COMINT ESM (CESM) DF
• Band I, II, III Laser Sensor

Digital Receiver
• Instantaneous frequency range: 2-18 GHz
• Frequency accuracy: <1 MHz
• Frequency resolution: 0.1 MHz
• Sensitivity: -65 dBm to -75 dBm PW dependent
• Dynamic range: >60 dB
• PW: 0.05 µsec to CW
• Detection probability (POI): 100%
• Pulse density: 2 MPPS
Optional:
• Extended frequency range: 0.5-40 GHz
• Sensitivity: better than -80 dBm with additional integrated Narrow Band Receiver

Emitter Parameter Analysis
• Full parameter measurement, pulse & CW signals
• Capable of analyzing and presenting modern radars
• Designed to operate in littoral and open sea environments
• Simultaneous scan rate analysis of all emitters
• 500 tracked emitters
• Identification Library: over 10,000 sets of emitter parameters

ECM
• Wide selection of ECM and EA, modern techniques based on multibit DRFM technology
• User-defined ECM technique file generator
• MBAT or SSA 6 – 18 GHz, ERP: >75 dBm, higher ERP optional

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Seamless Integration

Smooth and easy integration with all types of on-board combat systems:

- Command and Control Systems (C2)
- Combat Management Systems (CMS)
- Decoys (Chaff, Flare, Active RF)
- Control & Launching Systems
- Radar Blanking signals
- Hard-Kill Defense Systems
- Surveillance and Navigation Radar Systems, Fire Control Radars, etc.

Personalized Customer Support

Complete, customized ILS package:

- Installation Support
- Setting to Work
- Harbor and sea trials
- Training
- Operation and technical manuals
- Spare parts
- Test equipment
- O to D maintenance levels
- Various types of after-sale support and services

EW Suites - Technical Specifications

Subsystem	Basic Configuration	Extension A	Extension B
Radar	Frequency Range	Extended	Enhanced DF Accuracy
ESM/ELINT	2-18 GHz	Frequency (0.5-2, 18-40 GHz)	implemented by the appropriate technique
Radar ECM	Frequency Range I-J band, 75 dBm ERP, MBAT,SSA	Higher ERP MBAT,SSA	Millimeter Wave Transmitters
Laser Warning System (LWS)	Multi-Band Sensor Laser Warning System	Additional Spectral Bands	Additional Sensors
COMINT ESM & DF (CESM)	Frequency Range HF, VHF, UHF Bands up to 6 ghz	High DF Accuracy	
Human Machine Interface (HMI)	Single-Operator Console	Dual-Operator Console	Hosted on customer's Multi-Function Console (MFC)

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ew-elisra.info@elbitsystems.com
www.elbitsystems.com

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